

CLAIMS

1. A semiconductor device having a plurality of pads above a main surface of a semiconductor substrate as terminals for external connection, wherein

5 the plurality of pads include dual use pads which are used in both a probing test and assembly, and assembly pads which are not used in the probing test,

the dual use pads are provided in a first area above the main surface of the semiconductor substrate, an
10 application of pressure by a probe during the probing test being permitted in the first area, and

the assembly pads are provided in a second area above the main surface of the semiconductor substrate, the application of pressure by the probe during the probing test
15 being not permitted in the second area.

2. The semiconductor device of Claim 1, wherein the dual use pads have a shape compatible with both assembly and connection with the probe, and the assembly pads have a shape
20 compatible with only assembly.

3. The semiconductor device of Claim 1, wherein the first area corresponds to an area above a peripheral region of the main surface of the semiconductor substrate, and the dual
25 use pads are arranged linearly along a periphery of the main surface of the semiconductor substrate.

4. The semiconductor device of Claim 1, wherein the

plurality of pads further include probing test pads which are not used in assembly, and the probing test pads are further provided in the first area.

5 5. The semiconductor device of Claim 4, wherein
the dual use pads have a shape compatible with both
assembly and connection with the probe,
the assembly pads have a shape compatible with only
assembly,

10 the probing test pads have a shape compatible with only
connection with the probe, and

a measurement in a pad pitch direction of the shape
compatible with only connection with the probe is smaller
than a measurement in a pad pitch direction of the shape
15 compatible with only assembly.

6. The semiconductor device of Claim 3, wherein the first
area corresponds to the area above the peripheral region of
the main surface of the semiconductor substrate, and the dual
20 use pads and the probing test pads are arranged alternately
and along the periphery of the main surface of the
semiconductor substrate.

7. A semiconductor device having a plurality of connection
25 pads that are terminals for external connection positioned
in a top layer above a main surface of a semiconductor
substrate, and at least one wiring pad positioned in an inner
layer between the semiconductor substrate and the connection

pads, wherein

in an overlap area, being a portion where the at least one wiring pad overlaps part or all of the connection pads when viewed from the main surface of the semiconductor substrate, a potential of the wiring pad is the same as a
5 potential of the connection pads.

8. The semiconductor device of Claim 7, wherein the connection pads are dual use pads used in both a probing test
10 and assembly, whose shape is compatible with both assembly and connection with a probe.

9. The semiconductor device of Claim 7, wherein the at least one wiring pad in the overlap area is connected to a
15 drain of a transistor formed in the semiconductor substrate, and a shape of the overlap area is substantially the same as the shape of the connection pads.

10. The semiconductor device of Claim 7, wherein a
20 connection of a transistor gate is extended by a thin film formed on a surface of the semiconductor substrate at the portion which overlaps a connection pad, and by the at least one wiring pad at a portion which does not overlap the connection pads.

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11. The semiconductor device of Claim 7, wherein the connection pads are composed of a portion used in the probing test and another portion, and the overlap area is a portion

where the at least one wiring pad and the portion used in the probing test overlap when viewed from the main surface of the semiconductor substrate.

5 12. The semiconductor device of Claim 11, wherein the connection pads are dual use pads used in both the probing test and assembly, a shape of the portion used in the probing test is compatible with connection with the probe, and a shape of a portion used in assembly is compatible with only
10 assembly.

13. The semiconductor device of Claim 7, wherein the at least one wiring pad has two layers, and a via is not formed between a first and second layer of the portion where the
15 at least one wiring pad and the connection pads overlap when viewed from the main surface of the semiconductor substrate.